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# CS-200

## SOLAR PORTABLE TRAFFIC SIGNAL SYSTEM FIELD MANUAL



134 Ogilvie Avenue, Echuca 3564  
(03) 5482 6262

# CS-200 FIELD OPERATING INSTRUCTIONS

## DESCRIPTION OF CS-200 MODES

### ONE-WAY OPERATION

Flash	Both Master and Slave flash yellow.
Manual – 1	Traffic signals are under the control of the “Manual Controller”.
Auto	Traffic signals are under the control of Preset Timers.
Normal	Traffic signals are under the control of Vehicle Detectors but times are limited by the pre-set timers.

### TWO -WAY OPERATION

#### **Manual 2 – Manual return**

This mode of operation is used where traffic is flowing in both directions and ROAD PLANT requires to cross or have access to the carriageway. Both the Master and Slave are normally showing GREEN allowing traffic flow in both directions. When the Master receives a “STOP” command, both the Master and Slave go to RED. This condition will remain until the Master receives a “GO” command where upon the Master and Slave go back to GREEN.

#### **Manual 3 – Auto Return (Not allowed in NSW)**

This mode of operation is used where traffic is flowing in both directions and ROAD PLANT or other vehicles are leaving a work area and find it difficult to enter a busy carriageway. The CS-200, when in this mode, would have the CABLED MANUAL CONTROLLER or PORTABLE RADIO MANUAL CONTROLLER (Optional) positioned so the driver of the vehicle wishing to enter the carriageway can operate the “STOP” button. Both the Master and Slave normally show GREEN allowing traffic flow in both directions. When the driver presses the “STOP” button both the Master and Slave go to RED. After a preset time, set by the “Master Red Time”, the Master and Slave go back to GREEN.

### LANTERN INHIBIT OPERATION

The CS-200 may be placed into a condition where the system functions normally with the exception that the lanterns remain blacked out. The system must be in FLASH YELLOW before this mode can be selected and will return to FLASH YELLOW when lanterns are enabled again. The main use of this mode is in the setup and testing of the system while the units are positioned on the side of the carriageway.



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## MODE SELECTION

### ONE-WAY OPERATION

#### **Flash Yellow**

There are three ways the system can enter this mode:

1. When the Master or Slave is turned on, this mode is automatically selected.
2. If a fault condition is detected.
3. Selected by pressing the "FLASH" mode button.

#### **Manual-1**

A small hand-held cabled controller is used to control all manual functions. It is connected to the Master Control panel via a 25 meter 4 core cable.

The manual controller has three buttons: -

- STOP
- MASTER GREEN
- SLAVE GREEN

Indication of the state of the traffic lights is also provided. This indication will flash if a button is operated while the system is in a MINIMUM TIME period or RED CLEARANCE TIME. This is important due to the fact that the minimum green and red times cannot be overridden and some indication needs to be given to the operator that the system has received the command but is waiting for a minimum time.

To select this mode, press the "MANUAL" mode button on the Master unit. The system is now under the control of the manual controller. Pressing the "STOP" button will terminate the running phase, which will go to RED. Both phases will stay on RED until a "MASTER GREEN" or "SLAVE GREEN" button is pressed. (Note that the pre-set RED TIMES cannot be overridden.) While the Master is green, pressing the "SLAVE GREEN" button will have no effect and vice versa.

#### **Auto (Time Mode)**

This mode is used to control a single lane of traffic where preset timers are used to regulate stop and go times. Times are entered on the keypad and assigned to the appropriate timers.

All times are displayed on the LCD and automatically stored in memory when the system is turned off. This alleviates the need to re-enter the times every time the system is turned on.

Before entering this mode, RED and GREEN times must be determined and entered into the Master unit. To set, use the keypad at the Master unit to enter the time, and then press the required TIME SETTING key. (eg. Master Red Time)

Once the times have been entered, press the "AUTO" mode button. If the system is in "FLASH YELLOW" when the "AUTO" button is pressed then both phases will go to RED and traffic will be controlled in accordance with the preset times. If the system is in "NORMAL" mode when the "AUTO" button is pressed, then the present cycle will be allowed to finish before the "AUTO" mode takes control.



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**MODE SELECTION**

**- Cont'd**

**Normal (Vehicle-Actuated)**

This mode is used to control a single lane of traffic where vehicle detectors are used in conjunction with preset timers. When a moving vehicle is detected a demand is stored, displayed on the LCD and used to control traffic flow.

Before entering this mode, RED and GREEN times must be determined and entered into the Master unit. To set, use the keypad at the Master unit to enter the time, and then press the required TIME SETTING key. (eg. Master Red Time)

Once the times have been entered, press the "NORMAL" mode button. The system automatically registers an artificial demand for each phase for the first cycle, and then allows the control of traffic in accordance with the detected vehicle flow and the times that have been preset.

If the vehicle detector is not connected an alarm will occur and the system will not select this mode.

**NOTE 1 :-** The type of vehicle sensor used will detect movement only. It is therefore possible for a vehicle to be waiting and not have been detected. If this is deemed to be a problem, the sensor can be modified to produce a pulse every 2.5 minutes. Contact supplier for details.

**NOTE 2 :-** Systems are supplied with detectors operating on a frequency of 10.525Ghz which do not require an individual licence. Systems may be supplied (ON REQUEST) with detectors operating on a frequency of 10.587Ghz, but these units will require an individual licence.

**NOTE 3 :-** Check at least once a year that frequencies and licences are still valid.



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# CS-200 Solar Portable Field Operating Instructions

## MODE SELECTION

### TWO-WAY OPERATION

#### **Manual-2 (Manual Return)**

To enter this mode, put the system into “FLASH YELLOW” and press the No. “2” key on the keypad twice followed by the “MANUAL” button. The display will read: -

MODE: MANUAL-2 (TWO WAY)

The functions of the buttons on the controller are: -

STOP	Both Master and Slave go to RED.
MASTER GREEN	Both Master and Slave go to GREEN. SLAVE
GREEN	Both Master and Slave go to GREEN.

#### **Manual-3 (Auto Return) – (Not Allowed In NSW)**

To enter this mode, put the system into “FLASH YELLOW” and press the No “3” key on the keypad twice followed by the “MANUAL” button. The display will read: -

MODE: MANUAL-3 (TWO WAY)

The functions of the buttons on the controller are: -

ALL STOP	Both Master and Slave go to RED
MASTER GREEN	No effect
SLAVE GREEN	No effect

### LANTERN INHIBIT OPERATION

To select or de-select this mode, select “FLASH YELLOW” and press: -

Lanterns OFF	-	800 “YELLOW TIME”
Lanterns ON	-	801 “YELLOW TIME”

### GENERATOR AUDIBLE ALARM INHIBIT

To turn the generator audible alarm ON and OFF, press: -

Alarm OFF	-	700 “YELLOW TIME”
Alarm ON	-	701 “YELLOW TIME”

### PROGRAMMING THE TRH-3 HAND HELD RADIO REMOTE CONTROLLER

The remote has to be programmed by the Master unit before it can control the system. To do this select “FLASH YELLOW”, hold down the MANUAL/AUTO button on the remote and press: -

Program	-	600 “YELLOW TIME”
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**ENTERING TIMES**

**“MASTER RED TIME”**

Time to clear the carriageway before the Slave goes to GREEN.

To set - Using the keypad at the master unit enter the time, then press “MASTER RED TIME”

**“SLAVE RED TIME”**

Time to clear the carriageway before the Master goes to GREEN.

To set - Using the keypad at the Master unit enter the time, then press “SLAVE RED TIME”

**“MASTER GREEN TIME”**

Period of time the Master will remain on GREEN.

To set - Using the keypad at the Master unit enter the time, then press “MASTER GREEN TIME”

**“SLAVE GREEN TIME”**

Period of time the Slave will remain on GREEN.

To set - Using the keypad at the Master unit enter the time, then press “SLAVE GREEN TIME”

**“YELLOW TIME”**

Period of time the yellow aspect on the Master and Slave will remain on when the system is changing between GREEN and RED.

To set - Using the keypad at the Master unit enter the time, then press “YELLOW TIME”



## **ALARM CONDITIONS**

### **SYSTEM ERROR**

The audible alarm is sounded and the display will have a description of the fault. The audible alarm may be turned off by pressing the “CLEAR” key. This does not affect the display.

### **RELIABILITY ERROR**

If 5 errors have been detected in a 20 minute period, then this alarm will be displayed.

### **FATAL ERROR**

If the main electronic system stops or it has detected that two aspects are on at the same time, then this condition will be invoked.

This alarm is indicated by flashing all the status lamps on the front panel. (The display may or may not indicate this error).



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## **ENVIRONMENTAL REQUIREMENTS**

### **WIND LOADING**

#### **MAX. WIND VELOCITY WITHOUT ANCHOR BLOCKS**

**95Km/Hr**

#### **Requirements for Wind Velocities above 95Km/Hr.**

1. Remove wheels.
2. Attach 735Kg to each trailer to prevent high winds above 95Km/Hr. from shifting its position.

#### **Procedure:-**

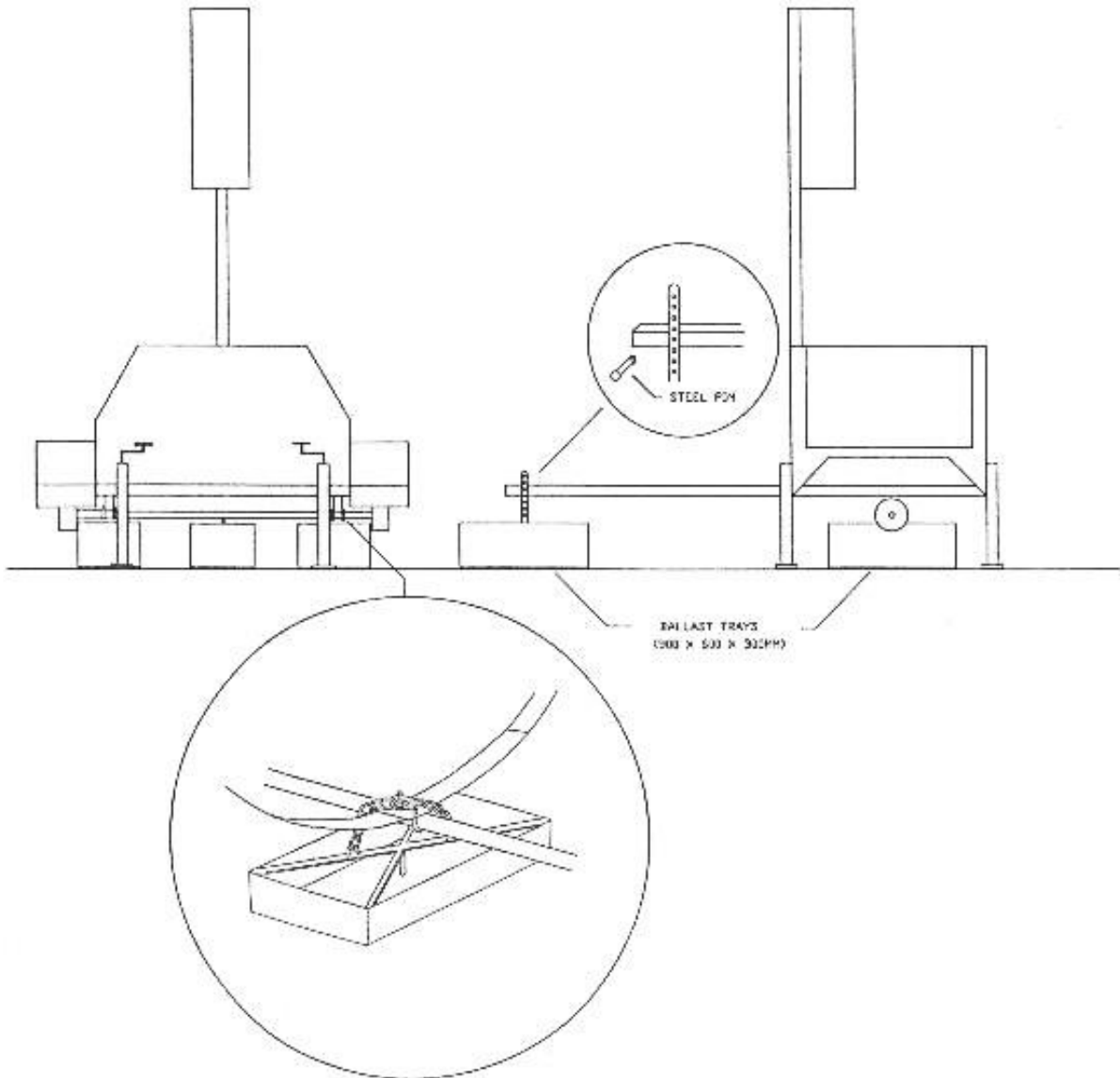
- a) Remove wheels.
- b) Place ballast tray under towbar and attach it to the trailer using the steel pin and Padlock provided.
- c) Fill tray with 6 cubic feet of earth or crushed rock.
- d) Place ballast tray under **each** trailer axle spring and attach it to the trailer using the chain provided.
- e) Fill **each** tray with 6 cubic feet or earth or crushed rock.



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**ENVIRONMENTAL REQUIREMENTS**



## QUICK REFERENCE GUIDE

### MAXIMUM DISTANCE BETWEEN UNITS

1Km

### MAXIMUM VISUAL RANGE OF LANTERNS

100m

### ENVIRONMENTAL REQUIREMENTS

(Wind Loading)

### Quick Reference Guide

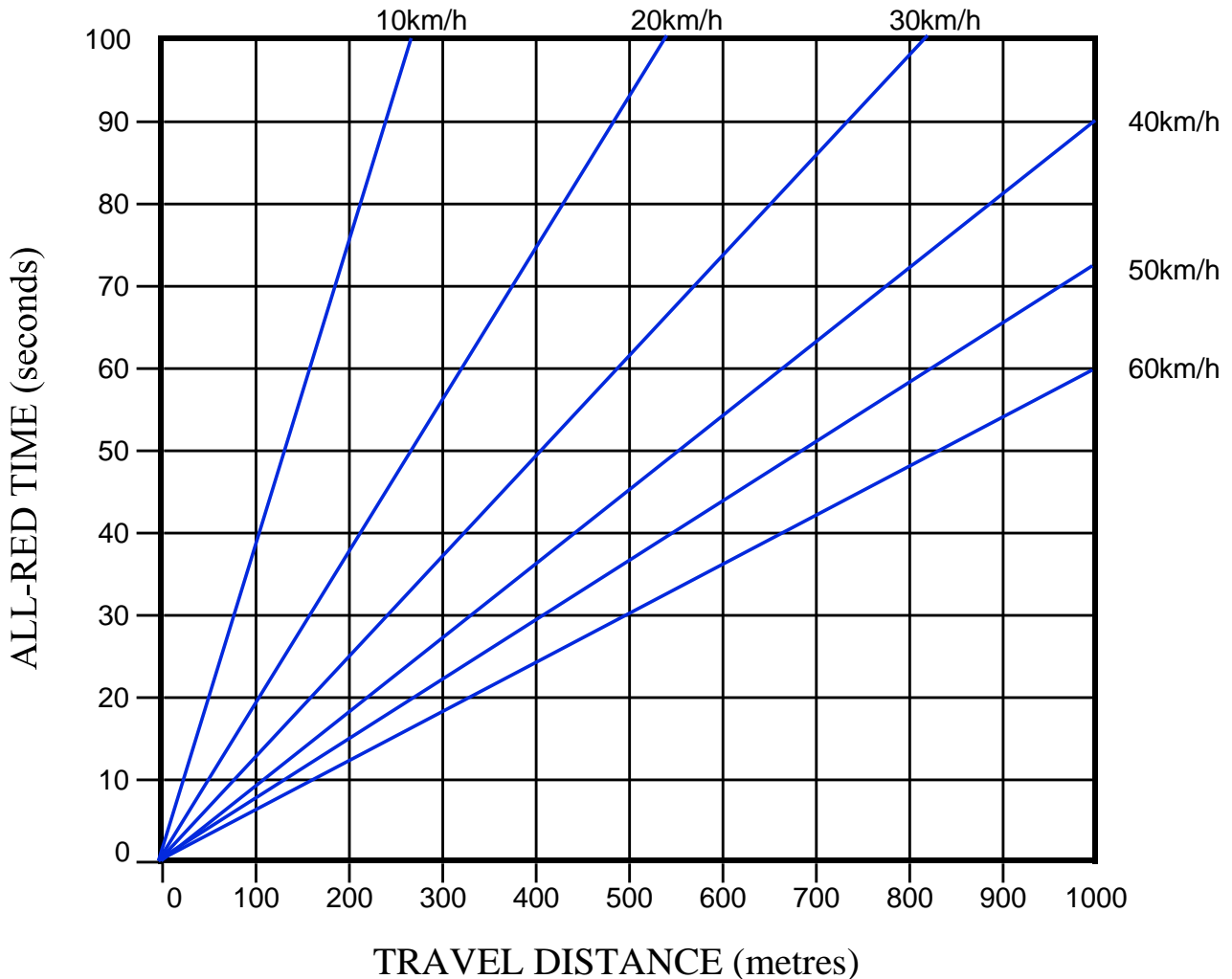
Clear System Log	999 “YELLOW TIME”
System Log	900 “YELLOW TIME”
System Time	901 “YELLOW TIME”
System S/N	902 “YELLOW TIME”
Channel Selection – CH1	614 “YELLOW TIME” 647 “YELLOW TIME”
Channel Selection – CH2	614 “YELLOW TIME” 648 “YELLOW TIME”
Lamps OFF	800 “YELLOW TIME”
Lamps ON	801 “YELLOW TIME”
Generator alarm OFF	700 “YELLOW TIME”
Generator alarm ON	701 “YELLOW TIME”
Program Manual Remote	600 “YELLOW TIME”
(While holding down the “RETURN” button on the Remote).	

To clear the **Audible Alarm** of any error press the “**CLEAR**” BUTTON



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**RELATIONSHIP BETWEEN ALL-RED CLEARANCE TIME AND TRAVEL DISTANCE FOR A RANGE OF VEHICLE SPEEDS**



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